



FACULTY OF MECHANICAL
ENGINEERING
UNIVERSITY
OF WEST BOHEMIA

Dual-studies at FME-UWB?

A short overview of the situation
at the Faculty of Mechanical Engineering,
University of West Bohemia in Pilsen

Roman CERMAK

International dual studies in the European Region Danube - Vltava
12th of October 2015, University of Applied Sciences Landshut

STRUCTURE OF THE UNIVERSITY



Faculty of Applied Sciences	→	NTIS	New Technologies for Information Society – Research Centre
Faculty of Electrical Engineering	→	RICE	Regional Innovation Centre for Electrical Engineering
Faculty of Mechanical Engineering	→	SUSEN	Sustainable Energy – Research Centre
Faculty of Economics	→	RTI	Regional Technological Institute Research Centre
Faculty of Philosophy and Art			
Faculty of Law			
Faculty of Education			
Faculty of Health Care Studies			
Ladislav Sutnar Faculty of Design and Art			
Institute of Applied Language Studies			
New Technologies Research Centre - NTC			

ap. 13.000 students

STRUCTURE OF THE FACULTY OF MECHANICAL ENGINEERING



Department of Machine Design
Department of Power System Engineering
Department of Material Science and Technology
Department of Industrial Engineering and Management
Department of Machining Technology
Department of Physical Education and Sports

RTI - Regional Technological Institute – Research Centre
FORTECH – Forming Technology Research Centre
SUSEN – Sustainable Energy – Reserch Centre

ap. 1.200 students in Bc., MSc. and PhD study programmes



Bc. (3years, 180 ECTS), **MSc.** (2years, 120 ECTS), **PhD.** (4years) in fields:

Manufacturing Processes - Technology of Metal Cutting

Industrial Engineering and Management

Design of Power Machines and Equipment

Materials Engineering and Engineering Metallurgy

Design of Manufacturing Machines and Equipment

Transport Vehicles and Handling Machinery

Nuclear Power Equipment Design (*MSc. only*)

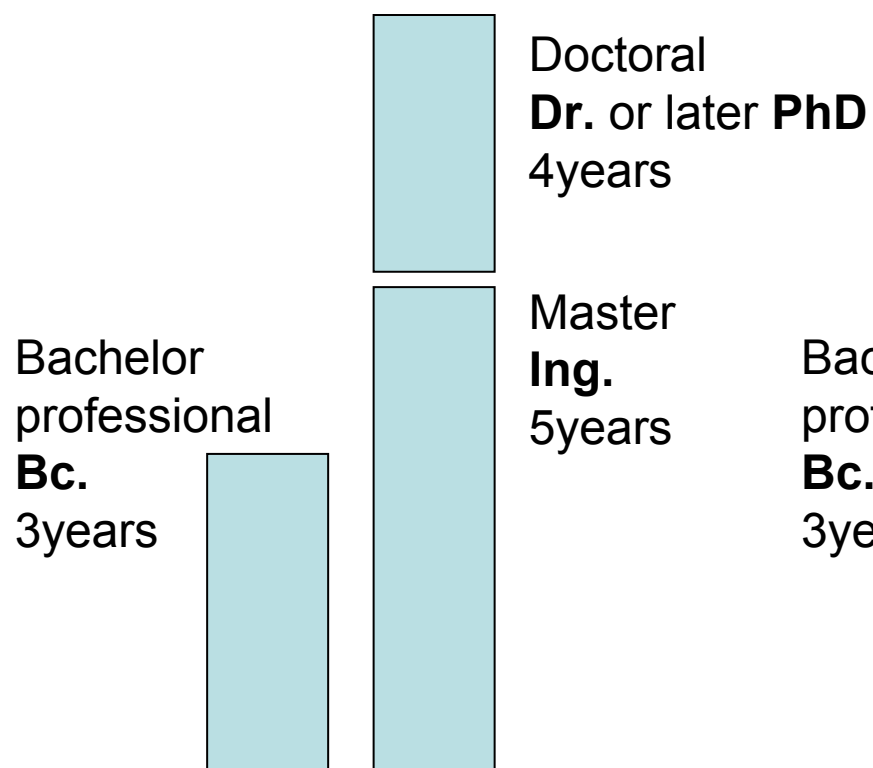
Medical Equipment Design (*MSc. only*)

Design of Machines and Equipment (*PhD. only*)

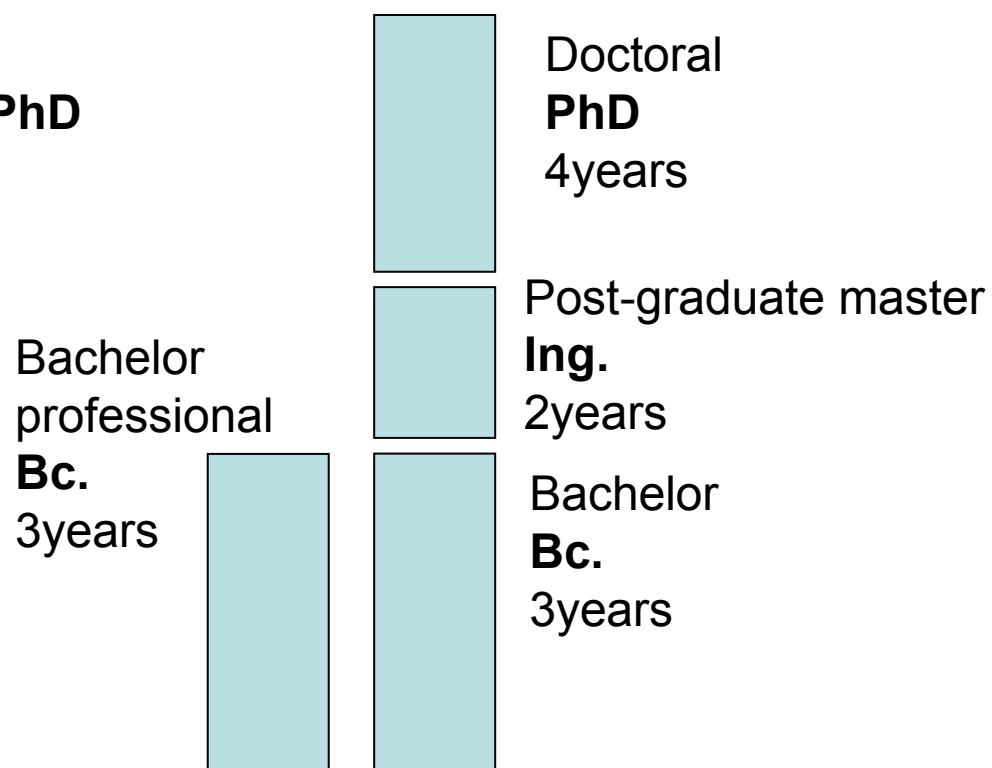
Engineering of Special Technologies and Materials (*PhD. only*)

STUDY PROGRAMMES - HISTORY

before implementation of
the Bologna declaration



after implementation of
the Bologna declaration



STUDY PROGRAMMES - HISTORY

Professional Bc. programmes

Practically oriented study programmes.

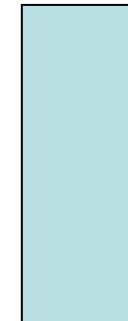
Materials Testing
 Programming of NC machines
 Quality Control
 Service of Medical Equipment
 Industrial Design
 Road Vehicles Diagnostics and Service
 etc.

... 10 different specializations. At the beginning (90-ties) reflected various industry requirements

We don't accept new students since 2013.

after implementation of
the Bologna declaration

**Bc.
professional**
3years



PhD
4years



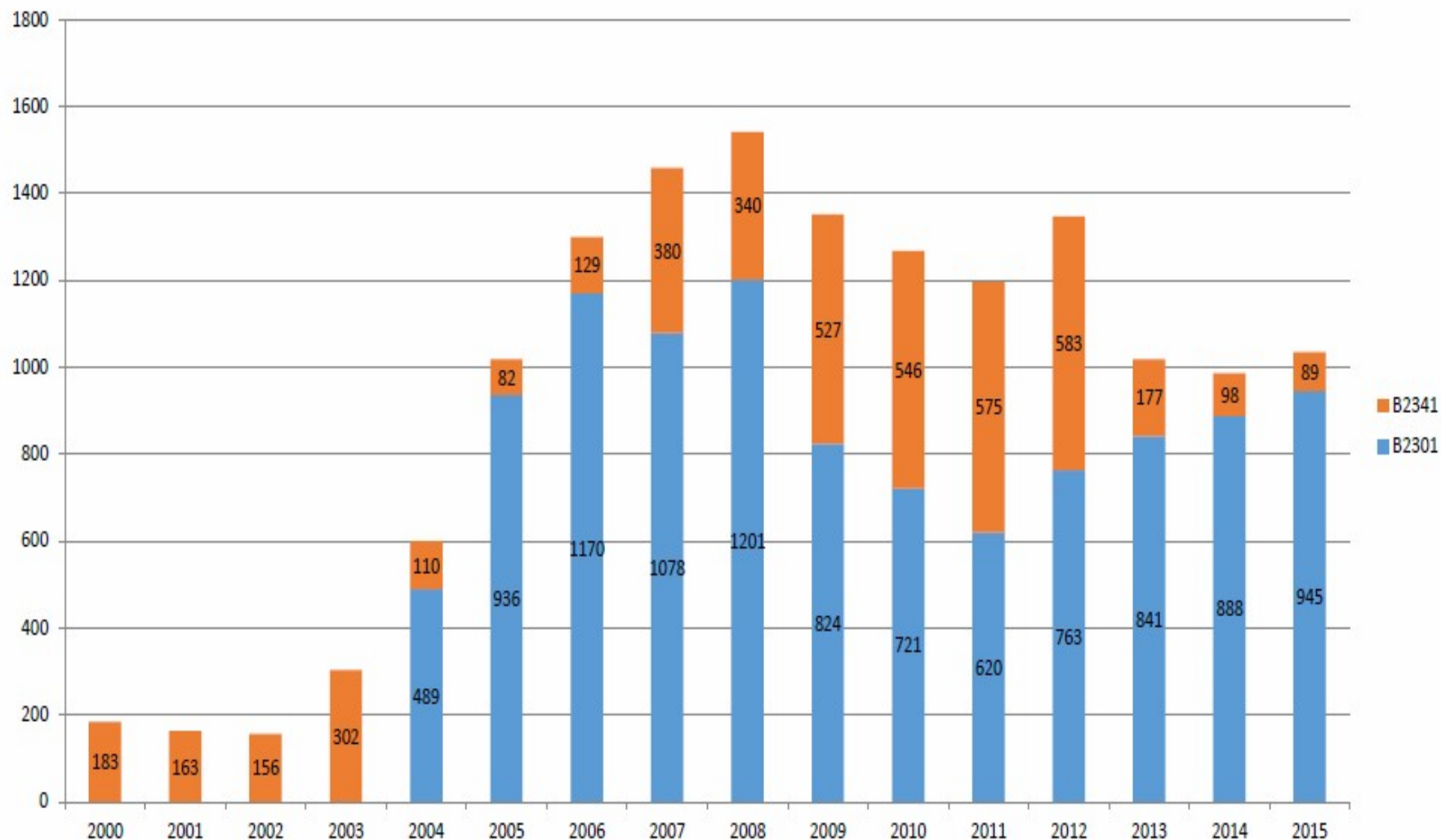
Ing.
2years



Bc.
3years



STUDY PROGRAMMES – HISTORY NUMBERS OF STUDENTS IN BC. PROGRAMMES



We offered at one school two very different bachelor programmes.
(in other countries usually provided by two different institutions).

We award the same degree, only the diploma says, which type of Bc. it is.
(sometimes problems with knowledge level definition when applying for
master study programmes....)

The programmes were “practically oriented”, which in fact meant less theory
and more “practical issues” ... but without practice (almost no industry involved).

Result: - not very successful = low interest from the industry
(only some specializations were exception)
- students had troubles with finding a proper job, and they continued
in master study programmes (where they fought with the lack of
theoretical knowledge)

The Faculty stopped it in 2012.

What is the reason of the low success?
Is there really lack of interest in the industry?

Some research studies show, that it should be different.

In cooperation with industrial partners (currently from Automotive) FME prepares an innovation.

Main characteristics:

- closer cooperation with industry in definition of the courses and their contents
- closer cooperation with industry in the educational process (lectures delivered by ..., topics of projects led by ..., etc.)
- industrial placement at least several months during the whole studies
- final thesis from the industry
- proper job after graduation

Introducing a new (better) professional Bc. programme

We will probably not have a “real dual-study” ... accreditation?, too big resistance at the faculty, etc.

We could probably introduce only “a similar” model.

The biggest problem seems to be the industrial placement - internship.

Possible models:

1. one or two months industrial placement between the 1st and 2nd year.
2. one or two months industrial placement between the 2nd and 3rd year.
3. one semester industrial placement in the 6th or 7th semester - min.4months, might be done together with the final project – thesis
(discussions about the total length of study – 3 or 3,5 year)
4. one-day-a-week internship during normal studies (~ part-time job)

In this period we negotiate with the industry, which model or combination is acceptable.

Changes in the current study programmes

Our analyses show, that current study programmes do not allow the students to participate in mobilities/internship without significant problems in their studies.
(= usually individual study programme or one extra year)

Reasons:

1. There are obligatory courses in every semester
2. Quite big differences in courses and in organization of studies in CZ and other countries
(= problems with course replacements ... when we strictly compare the contents)
3. Currently no industrial placement in study programmes (= no credits)

The expected changes:

1. reshuffle the programmes to avoid obligatory courses in the last semesters
(6th in the Bc. and the 4th in Msc.programmes)
2. introduce options in last semesters: industrial placement or international mobility
or optional courses

Making the technical studies more attractive for students

To attract more students, who would appreciate the studies more connected to the practice. (and a promise of finding a good job after graduation)

Closing the gap between academia and industry

We hope to make the studies more “attractive” for industrial partners...

... they might be more involved in definition of the contents, participate in the education, provide students with an internship, guarantee a job opportunity after graduation, etc.

... it can help to increase cooperation in other fields (R&D activities)

Internationalization

We believe that cross-border student exchange will make the programme more attractive.

We hope to find partners for cross-border cooperation – both academia and industry.



**FACULTY OF MECHANICAL
ENGINEERING**
UNIVERSITY
OF WEST BOHEMIA

CONTACT



Thank you for your attention.

Contact:

Roman CERMAK
University of West Bohemia
Faculty of Mechanical Engineering
Univerzitní 8, 30614 Plzen, Czech Republic
rcermak@fst.zcu.cz
www.zcu.cz , www.fst.zcu.cz